SEQUENCE LISTING

<110> DANA-FARBER CANCER INSTITUTE, INC.
KOLODNER, Richard
WINAND, Nena

<120> A METHOD OF DETECTION OF ALTERATIONS IN MSH5

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<151> 1997-07-03

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Lys Thr Val Tyr Ser Ala Leu Gly Leu Arg Asp Ala Cys Arg Ser Leu
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Pro Gln Ser Ile Gln Leu Phe Gln Asp Ile Ala Gln Glu Phe Ser Asp
        355                 360                 365

Asp Leu His His Ile Ala Ser Leu Ile Gly Lys Val Val Asp Phe Glu
    370                 375                 380

Glu Ser Leu Ala Glu Asn Arg Phe Thr Val Leu Pro Asn Ile Asp Pro
385                 390                 395                 400

Asp Ile Asp Ala Lys Lys Arg Arg Leu Ile Gly Leu Pro Ser Phe Leu
                405                 410                 415

Thr Glu Val Ala Gln Lys Glu Leu Glu Asn Leu Asp Ser Arg Ile Pro
            420                 425                 430

Ser Cys Ser Val Ile Tyr Ile Pro Leu Ile Gly Phe Leu Leu Ser Ile
        435                 440                 445

Pro Arg Leu Pro Phe Met Val Glu Ala Ser Asp Phe Glu Ile Glu Gly
    450                 455                 460

Leu Asp Phe Met Phe Leu Ser Glu Asp Lys Leu His Tyr Arg Ser Ala
465                 470                 475                 480

Arg Thr Lys Glu Leu Asp Thr Leu Leu Gly Asp Leu His Cys Glu Ile
                485                 490                 495

Arg Asp Gln Glu Thr Leu Leu Met Tyr Gln Leu Gln Cys Gln Val Leu
            500                 505                 510

Ala Arg Ala Ser Val Leu Thr Arg Val Leu Asp Leu Ala Ser Arg Leu
        515                 520                 525

Asp Val Leu Leu Ala Leu Ala Ser Ala Ala Arg Asp Tyr Gly Tyr Ser
    530                 535                 540

Arg Pro His Tyr Ser Pro Cys Ile His Gly Val Arg Ile Arg Asn Gly
545                 550                 555                 560

Arg His Pro Leu Met Glu Leu Cys Ala Arg Thr Phe Val Pro Asn Ser
                565                 570                 575

Thr Asp Cys Gly Gly Asp Gln Gly Arg Val Lys Val Ile Thr Gly Pro
            580                 585                 590
```

Asn Ser Ser Gly Lys Ser Ile Tyr Leu Lys Gln Val Gly Leu Ile Thr
595 600 605

Phe Met Ala Leu Val Gly Ser Phe Val Pro Ala Glu Glu Ala Glu Ile
610 615 620

Gly Val Ile Asp Ala Ile Phe Thr Arg Ile His Ser Cys Glu Ser Ile
625 630 635 640

Ser Leu Gly Leu Ser Thr Phe Met Ile Asp Leu Asn Gln Val Ala Lys
645 650 655

Ala Val Asn Asn Ala Thr Glu His Ser Leu Val Leu Ile Asp Glu Phe
660 665 670

Gly Lys Gly Thr Asn Ser Val Asp Gly Leu Ala Leu Leu Ala Ala Val
675 680 685

Leu Arg His Trp Leu Ala Leu Gly Pro Ser Cys Pro His Val Phe Val
690 695 700

Ala Thr Asn Phe Leu Ser Leu Val Gln Leu Gln Leu Leu Pro Gln Gly
705 710 715 720

Pro Leu Val Gln Tyr Leu Thr Met Glu Thr Cys Glu Asp Gly Glu Asp
725 730 735

Leu Val Phe Phe Tyr Gln Leu Cys Gln Gly Val Ala Ser Ala Ser His
740 745 750

Ala Ser His Thr Ala Ala Gln Ala Gly Leu Pro Asp Pro Leu Ile Ala
755 760 765

Arg Gly Lys Glu Val Ser Asp Leu Ile Arg Ser Gly Lys Pro Ile Lys
770 775 780

Ala Thr Asn Glu Leu Leu Arg Arg Asn Gln Met Glu Asn Cys Gln Ala
785 790 795 800

Leu Val Asp Lys Phe Leu Lys Leu Asp Leu Glu Asp Pro Thr Leu Asp
805 810 815

Leu Asp Ile Phe Ile Ser Gln Glu Val Leu Pro Ala Ala Pro Thr Ile
820 825 830

Leu

<210> 55
<211> 232
<212> DNA
<213> Human

<400> 55
gtaacctccg cgtgacagaa tgagggtggg gcgcgtggag tttcccacaa tctgtacttt 60
agttaaatac ccgagaattc acctcctgtg tccacagctc tccacgcccc tcagccctgc 120
cccgcagccc tgtatcagaa gtacttagcg ctttgcattc tgcgcgccac cctaccccgg 180
cctcctctgt gaatcgttgc ttccgaaccg ccctcacttt ttgcatccgc ag 232

<210> 56
<211> 74
<212> DNA
<213> Human

<220>
<221> intron
<222> (73)..(74)
<223> N = A or T or G or C

<400> 56
gtctctgagg ggagtagaaa cttgaatgga gagttgatgg gaatttaaaa taaaagaggg 60
ttgggagccg ggnn 74

<210> 57
<211> 189
<212> DNA
<213> Human

<400> 57
aaaaaaaaac agggttggga agagctgggc aagtctctta cctcctgagt ggctgtttca 60
cattcactaa atgggggtga tgatgcctat ctcagagatt tgagaaaatg attaaattat 120
ataagacatg gtaaacccta cacttatgag tgattctaat agtgatttcc tttcttcctt 180
gctggacag 189

<210> 58
<211> 450
<212> DNA
<213> Human

<220>
<221> intron
<222> (449)..(450)

<223> N = A or T or G or C

<400> 58
gtggggatgg aaccatgaat tcctctgctc tctgggattg cagatgtgtt acacacacac 60
acacacacac acacacacac acacacatat ttttttttc tagacagagt cttgctctgt 120
tacccaggct caagtgcagt ggcgcaatct tggctcactg cagcctccac ctcctgggtt 180
caagcaattc tcctgactca acctcccgag tagctgggac tacaggcgtg tgccaccaca 240
cccagctagt tttttgtgtg tgtttttagc acagacggtg tttcaccatg ttggccaggg 300
tggtctcaaa ctcctgacct tgtgatccgc ccaccttggc ctcctaaagt gctgggacta 360
caggtgtgag tcaccacgcc cagccatgtt ttacttacat taactcacct cactgtctag 420
catattttgt gttgctgtaa ggaaatacnn 450

<210> 59
<211> 323
<212> DNA
<213> Human

<400> 59
ggcgacaaat atatatgacg tatttacaat gtttcaggtg cttcagattc agccctgggc 60
aaatcagtca tgtctgttct ccaggggttt acagcctagt gacaacatcc agaacatccc 120
acttccctct caccatccca ccactcttaa ctacttttct aaatctcaac ttctacctgt 180
gttcccactg tgcagagcac tccctactcc tagggaggaa atgtttttga gaaggagagg 240
ggtaggaaga ggagggctat gggttttctc ttagtcaaag acaaagatcc tttaactcat 300
ttgatctctg ttctccttcc aag 323

<210> 60
<211> 150
<212> DNA
<213> Human

<400> 60
gtaaggactt ggtaaaggat agagggaaaa tggggaagga ctaatatatg gaatattcca 60
gggggctaga attgggtgag agggagtgtc agacagaggt agaaggactg agatgtaaag 120
aatgatagcc ttttctttcc tccccacag 150

<210> 61
<211> 733
<212> DNA
<213> Human

<400> 61
gtatctcctt ccttttgctt tgcctaactc cctgttccgg tgtcccattc tttcccccaa 60
ctctaccttc atcatcacag atctcccctc tgccttatgt catcctaaac ctttgtgctc 120
ctcatgccct atgacctgtc cccccaagat ctctcctgct ccctaccctt taataatctg 180
cagcttattg ggaagcctct gcttaagtca tgtctaggga tgagggcctc ccctgaggag 240

tggtgacact ttttggacag ggttttattg ttggaattct ccccattaag ttaaagcctt 300
ttatcaccaa accaaaaggc actgcctcag tgacccttat tatgatccat aaggcacttc 360
tataactttc ctaggtttac aataagaaca ggagtgtact atcctaatta gatattaagg 420
cattagtgtt actagttcta ttaataccat tattttgacc aaaatcctca attccagaca 480
gatgtctact ttcctcagcc atttatcttt ctcaggctgt gctttcagac aagtatcttt 540
atattatatg tagaataaaa agagaattag actaagagtc tgaaaatttg gttcttgctc 600
tagctttcca ttaactgcct gtgtgagctt gggcaagtca aataatctct cttgcttcta 660
ttgtctcatt cttaaaatgg ggtgaaaaaa ttgagctaca agaccgttcc ctttgcttgc 720
ctccctcaaa tag 733

<210> 62
<211> 164
<212> DNA
<213> Human

<400> 62
gtgagattgg tcctggggga taagggctgg gaggcggcac aagtgctagg gctgaattct 60
gggaggtact ggcctagccc tggaaaatag taactttccc tggtgctctg cagcccccag 120
gagatttaag atttaccccg attccactgc tgatcccctc ccag 164

<210> 63
<211> 246
<212> DNA
<213> Human

<400> 63
gtaggtgatt caccccaacc ccaaccaaag taatgtggga ttgggaggcc tgaaaagtaa 60
agtgggggtg gggtgtggat gtggctgtga cccagtgggt caagggctct aggacacccg 120
ggagaatcta agggctaatg agactttggg aagaagactg ggacaatatt cagagagggg 180
gacaaaggaa gtggagttgt ggaacgaact cagactgctt cctgcttttt tgttttctgt 240
cctcag 246

<210> 64
<211> 413
<212> DNA
<213> Human

<220>
<221> intron
<222> (412)..(413)
<223> N = A or T or G or C

<400> 64
gtaaagaggt ggaggcatgc tgctgtctct ggggagggag aaggattaag tttaatgccc 60
caataatcct aatgaggctc tagtttccct aatcctgggg ctattaagat ctctctcctt 120

gaaggaaagg gaaggggggt tttgagggaa agagaggaag aaaagcataa agatactagc 180
tttctttttct atagggagaa actgaggcaa agaaaagtaa gggacaaacc ttacatcaag 240
atatgatctc ggctgggcgc ggtggctcat gcctgtaatc cccgcgcttt gggaggccaa 300
ggcgggtgga tcgcctgagg tcaggagttt gagacctgac caatatggta aaaccccgtc 360
tctactaaaa atataaaaat tagctgggtg tgttgtgcgc ctgtaatccc ann 413

<210> 65
<211> 136
<212> DNA
<213> Human

<400> 65
ttttttttta aaaaaaaaaa aaaaaagacg tgatctcagg aggatatccc ctgtccccat 60
tccatttatc agtcctcaat tcttattccc ctcaaaagtc caagttaccc caaactcctc 120
catttctcct cgacag 136

<210> 66
<211> 356
<212> DNA
<213> Human

<220>
<221> intron
<222> (355)..(356)
<223> N = A or T or G or C

<400> 66
gtaggtgtgc cccatccctc atctcacgta caaagaccta ccagaaaagc aattggctcc 60
aaagatgtgt cccagcctcc cttcccactt cactcccatt gtcagatatc tctttcatgc 120
caatccaaat ttcttaccta tttgtacccc ccgcccccca agcttgagca tcttcccata 180
ctttgtggct gtacagtgtg ttgcatatca gccattactt taccaattct gtgttccttc 240
cctgggtttg tatgaatgtt tctactagtt gggtacctgt tagggacttt gggagacctt 300
gtgtatagag aagagttttg taactgcata actgcctatt tgatttgtat agagnn 356

<210> 67
<211> 426
<212> DNA
<213> Human

<400> 67
ccaggagtag agggagagac agaaacagcc aacaatggcc cagaaaatgg atgatatatt 60
agataaggga agaaatgagt taccagattg gggagagatg gtttggatgt caaagcaggt 120
gatcggtgac gtcagcgtcc gagggaagac ggctgccacc ggcggggcca gttgagggaa 180
ctaggtagtt aagtgttgtc gggctaaaag tccctagagt gtccatccct ccccccatctc 240
catgtgcggt aatcccagct catttagggg ccaggcacca actttggttg cctttgtgcc 300

ctcccaggcc agcttcctca acaaccagca cctctgactg gatgcctcag gttagacaca 360
taaacacatt ccattgccct gtccgtgcct tgtaacaagt tcactccctg ccttatccct 420
cacaag 426

<210> 68
<211> 360
<212> DNA
<213> Human

<220>
<221> intron
<222> (359)..(360)
<223> N = A or T or G or C

<400> 68
gtgagtgggt cccacacata ctacacacta atgcatgaat tccatatgca cactacatac 60
taagcctact aatggcagta tacagattct cacatacacc accccaccta gtagtagtaa 120
agcaactgcc ctttactgag cactggctaa ctgcatttca tccttataac agctttgtgt 180
agtagctgat atgcatctca ttttttgttg tcagcgcagg tacacatata cattgatgat 240
acacagactt gcacacatac agcagcagga aaaaacacaa aatgtaaggc cgggcacagt 300
ggctcacacc tgttatcagc actttggggg gccaacgctg ggtgaccttc catctttgnn 360

<210> 69
<211> 447
<212> DNA
<213> Human

<400> 69
cacaggaaga atatgaaaag atgaatgtct gttgctgtta cccagagaca ctttcacagc 60
taaaaagaca tacaaactca tactgactca ccgtctctta ctcagcctca gagtgagctg 120
cagtgttggc acacaaatac ctcaacacac tgctctcctt ctaaaatatt gacaagctcc 180
gttacttata tacatggaat gacacacggt cttatccgtt gaaactgtga tatgtagaca 240
caattatgct cacatctagc aattttcagt agatacatgt aaacacacct gaatgggtag 300
gacactgcac ttgccactac attcccatag cacatcgtgg atacatattg ccacaatccc 360
cagggactgc aagcacactt tttggcaaac tgagatcaag atgatagatg taacttgtag 420
taccccccacc caaaccctca cttccag 447

<210> 70
<211> 127
<212> DNA
<213> Human

<400> 70
gtgagcccag ggtggagggc agggaggtgg ggaaggaggt tgagggctga tactgggcag 60
tgggcttctt gaggggcatt agagtgaggg aagagaaaac agcggctgta accttgtctg 120

actgtag 127

<210> 71
<211> 30
<212> DNA
<213> Human

<220>
<221> intron
<222> (29)..(30)
<223> N = A or T or G or C

<400> 71
gtaaggcctt ccttcttgaa tcccaaaann 30

<210> 72
<211> 222
<212> DNA
<213> Human

<400> 72
tacaggcatg agccactgtg cctggccagg accatatctt aattgtcttt gtagtttcag 60
tgtttggtac agtgcctctc actgtttctt tttgcctttg agatcttccc tctttgttac 120
tgtgatcttc cctactggtc tttgttcttc tgagtctgtc cctatcacca cctcaacccg 180
agctggatgt ggcctgtcct ccttttttgtg tttctctcac ag 222

<210> 73
<211> 254
<212> DNA
<213> Human

<400> 73
gtgagtagaa ggaaaaaggg agtgcaccca gggaggtcag ggagagagaa tgcagtgtgc 60
aagatgggga aacatggaag atattgaggt caattggata aagaatggga tggtgggagg 120
aggcagcaga acttcaggga agtatctgga gggtgagagt taaaggagga ctgcagggag 180
aattggggcc caaggagagc tgaggaacag gacagagggt gccaggtcct aagaaacagt 240
acttatctcc tcag 254

<210> 74
<211> 145
<212> DNA
<213> Human

<400> 74

gtgagtgttg ggtgtggatg ggcctgtgag ccctgcgcag tgatggagta ccatccttgg 60
caggtggtca ccacagctgg ggatcttcat agcaaccagg gcaggagact cacttttgat 120
aaccacctgt cttccaccct cgtag 145

<210> 75
<211> 98
<212> DNA
<213> Human

<220>
<221> intron
<222> (97)..(98)
<223> N = A or T or G or C

<400> 75
gtgagggcag gagagtgggt gtagccttca gatgtctttt gggggagata ttaggcttat 60
gaaagacata ctggtagata agaaaacttg tggggcnn 98

<210> 76
<211> 83
<212> DNA
<213> Human

<400> 76
atcttttaag ctcccttggg atggggaggt tccagtaagt ctccaaacaa gagagtagag 60
tatctcctct ttactctccc cag 83

<210> 77
<211> 247
<212> DNA
<213> Human

<400> 77
gtaagaccct caacctctgt aaggtgagtg atgaggaaaa tgagtcagca gctgaggaag 60
agcgttactc tacagcagca ctgcccaata tgggatctct cctctgtagt tttactctga 120
gctttaccag cactgagaca aaggaaagag aagtcagagt taggggctgg aggtggggtt 180
agaaagatgg ggaaggagag gaggaccaag agatgcaaag tccacagctt tgaacccctg 240
tacccag 247

<210> 78
<211> 273
<212> DNA
<213> Human

<400> 78
gtgaggaaaa gccagaggtt atatgcattg taagatgttt aaaaaaagca gcagccaggg 60
gaaggagggg agtgggcaac ttggggatgc ttccaacagg cccctcctct tcctgctctc 120
tgtctcgctc actctgactc tatcttttcc tctgaatgtc ttgaggtctc agattgtatc 180
tgcaacctgt ttccagatcc ccctaggggc ctctgcctct ccttcacttt cccctggaac 240
tgacctccag ctcccttcct cacccactcc cag 273

<210> 79
<211> 114
<212> DNA
<213> Human

<400> 79
gtaagaatag aggcgggtgg aggaatacac atgaggggcc caaaggctac atcttctggg 60
ggttcatcta tcttgatcca caagccatgc gaggtgcctc tccgcccact gcag 114

<210> 80
<211> 473
<212> DNA
<213> Human

<400> 80
gtgaggagaa gccctgcagc ctgggcctct ggcgtctcct gcatctactc cacccctact 60
tgccagccaa ctcaggctcc tgcagctctt ctcccatttt ctgaccccgc tcttcatgaa 120
aggaccatca cccacatccc tgtgcttcca cctcacatgt tcttattctc cactggagag 180
ccatgctcta atggaacttt ccgtggccca aattccttca cctgcctctg agtaggtaca 240
caccactccc aagtatgtct ctgcccacgt cccgtgcctc ttcactgatt ctaaattagc 300
ccacagggct atggtcagga ttcggggagg agagacagag tcagtgtgtc tgttacctat 360
ttctcctgtt tcaccctgtc catttctctt tgatgtgcca ttcatgcctt gagcctcact 420
ttcacctcag cccacggcac caggccccag gccctgtctc cttccctatt cag 473

<210> 81
<211> 348
<212> DNA
<213> Human

<400> 81
gtcaaaggga acaaagggag gtgggattga ggaaggggat aatgggaaag gaacccctga 60
aaatgctcat aacaggaaag catgccctct gctgcatgcc ctttatacta aaagtgggga 120
gcactaaggt cagagataag aagaatcaat accataaaca tttcttgaac ccttgtttca 180
tgtgagtcac tgttggcaaa gaggatgaac aaagcgtgca cctcaccatt caagaacttg 240
cagtgcagta gggagggcat gtatacagct ttattcacag gccaactgtg gtcagtgcgt 300
tacgggcttc caatactaac ttccccttgt ccaccttata cccagcag 348

<210> 82
<211> 209
<212> DNA
<213> Human

<400> 82
gtgaggggag aaactgatga ggggagaaac taaggagggg aaaatggagg aggatgaagg 60
agcatgacag tgaggctggg cctctggaat ggaatagggc tgtgtgggca gaaaagaaat 120
agaacacgag acagggaaag gcagtgcaag tgcagagggg catatggggt ccccatggct 180
ccgaatgcta acctctgccc tctttgcag 209

<210> 83
<211> 202
<212> DNA
<213> Human

<400> 83
gtgaggagac caatctagct cctcggggac ccccaggctg ggcatttccc agaggtgggg 60
attggctcct ctatcagaac aagggctccc tcagcacaga gaccacatcc cttccctttt 120
ctccctcccc acaggattgg ccaagggttt caggacagga aggaggtgat tgatgataca 180
ctgtctttta ttctctttta ag 202

<210> 84
<211> 155
<212> DNA
<213> Human

<400> 84
gtgatgagat ccaaatgtgc aaccacctcc acatcagagc tccctttcat tcctagtcct 60
actgggcctg ggtctaggtc cacaggattt ctgaccctta tttccccttc tcttccccac 120
tcccccttact cctcccacct tcttgcttgt cctag 155

<210> 85
<211> 215
<212> DNA
<213> Human

<400> 85
gtgcgtatat ggccccagtg tctttaccct ctctgcatct tctcctgcaa ctcttctccc 60
ccctccagca ctttgccctt cagaaaccca ccatttcttt ctgaaatccc taaatcttca 120
agatcccagg ttttctgtgc cacagcctct cccctctgcc cagggatttg gttgtccatt 180
ctgccataaa tcttgcgatt ttctctcttc ttcag 215

<210> 86

<211> 29
<212> DNA
<213> Human

<400> 86
gctgctcagg tatacagtac cacgctccc 29

<210> 87
<211> 29
<212> DNA
<213> Human

<400> 87
agatccgggg tgaggagccc gtggtagga 29

<210> 88
<211> 29
<212> DNA
<213> Human

<400> 88
gaatggcagg tgagaagggg ccccatgtc 29

<210> 89
<211> 29
<212> DNA
<213> Human

<400> 89
ctcaagcagg tgaggggccg ccaagctgg 29

<210> 90
<211> 29
<212> DNA
<213> Human

<400> 90
accaactcgg tgcggaggaa aatgaagag 29

<210> 91
<211> 29
<212> DNA
<213> Human

<400> 91
ttcccatccc aaccctccag gctgtggtt 29

<210> 92
<211> 29
<212> DNA
<213> Human

<400> 92
ctctctctct ccttctccag accaggaga 29

<210> 93
<211> 29
<212> DNA
<213> Human

<400> 93
tgtctctcta cccaccacag gcatcctct 29

<210> 94
<211> 29
<212> DNA
<213> Human

<400> 94
tctcccctgc cctggcccag gtaggcttg 29

<210> 95
<211> 29
<212> DNA
<213> Human

<400> 95
tcacctctgc cctttgacag gtggatggc 29

<210> 96
<211> 79
<212> DNA
<213> Human

<400> 96
gtatacagta ccacgctccc caagcaaagt caagatgaga gaagacgtga cttgtaacct 60

tcccatccca accctccag 79

<210> 97
<211> 135
<212> DNA
<213> Human

<400> 97
gtgaggagcc cgtggtagga gggggcaggc tgctctaaca gaccctgctc tcatgctggc 60
ccctctgcat ggtcacactg catctgcatg cctgcttcca gatctttcca ggcacctctc 120
tctctccttc tccag 135

<210> 98
<211> 79
<212> DNA
<213> Human

<400> 98
gtgagaaggg gccccatgtc ctgctgtggg gatcctccct gggtccacaa accatgcagt 60
gtctctctac ccaccacag 79

<210> 99
<211> 389
<212> DNA
<213> Human

<400> 99
gtgaggggcc gccaagctgg gggcccacat ctccatctcc tctggccgcc aggccagatc 60
ctctgccccc ccccacacac acatacagca catgtccttg tcctctgagg gacagtctgt 120
tctttaggat agacctttcc gtggccacaa gtccctggac caacctccaa atagatccat 180
gccgttccct agtatgcctt tacccacaac cttgactctg gagttaattg tgaagtcagg 240
acccaggaaa ctgtgttcca gggctctgtt cttctgttac actgtgtcct ctctttaatc 300
tgtcgttcat gtctttagtt gagacccatt tttactttgc ccatagtacg gcaacaggcc 360
catgttctgt ctcccctgcc ctggcccag 389

<210> 100
<211> 180
<212> DNA
<213> Human

<400> 100
gtgcggagga aaatgaagag atgctaagga ggggggatgg aggaaaatga gaaccgggag 60
caggagactg acctcaggga agaaaagggg gatgcgtgca cagaggggag gagaagccat 120
gacagctaca gaaggacaca gctgtcctgg ttctgccctc tcacctctgc cctttgacag 180

<210> 101
<211> 20
<212> DNA
<213> Human

<400> 101
ccagaactct ctggagaagc 20

<210> 102
<211> 21
<212> DNA
<213> Human

<400> 102
gtgctgtgga attcaggata c 21

<210> 103
<211> 27
<212> DNA
<213> Human

<400> 103
ctccactatc cacttcatgc cagatgc 27

<210> 104
<211> 28
<212> DNA
<213> Human

<400> 104
gctggggagg acactggaag gactctca 28